

Morocco - Fruit Tree Productivity

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Overview

Identification

COUNTRY

Morocco

EVALUATION TITLE

Fruit Tree Productivity

EVALUATION TYPE

Independent Performance Evaluation

ID NUMBER

DDI-MCC-MAR-FTPP-IND-2013-v1

Version

VERSION DESCRIPTION

Anonymized dataset for public distribution

Overview

ABSTRACT

Date Tree Irrigation Project:

The specific objectives of this evaluation are threefold:

- Performance evaluation of project activities, like the mid-term evaluation, based on elements related to relevance, efficacy, efficiency, coherence, and sustainability.
- Measurement of noticeable results at the end of the Compact, including effects and impacts (both positive and negative, expected or unexpected) on beneficiaries, institutions, project governance, and the environment, as well as the perceived change among stakeholders, including community members in the project areas, regarding the project itself and the results achieved.
- Analysis of the degree to which project mid-term evaluation recommendations were implemented, to see if they affected project performance.

The evaluation will also make recommendations for strengthening and capitalizing on project results and draw lessons to build upon during the design and implementation phase of similar projects in the future.

Extension Project:

The emphasis of this performance evaluation is primarily on the economic and financial assessment of one specific activity of the Fruit Tree Productivity Project, namely the "Extension of fruit tree plantations. The evaluation is commissioned by APP/MCC to take the outcome of the previous exercises as the starting point; revise the assumption made therein in light of actual situation in terms of outputs achieved and likely outcomes to be realized, and fine-tune the working hypothesis with respect to the key variables such as the yields and production costs.

The approach of the present exercise has focused on three aspects that are of crucial importance to the economic and financial impact assessment of the project. (i) The role and the significance of cereal crops in the livelihood of the smallholders in the project area, (2) the motivation of the stallholder to switch from traditional agricultural practices (TIP) being used in fruit tree husbandry to improved agricultural practices (IAP); and (3) the willingness of the stallholders to internalize wholly or partly the cost associated with the protection of the natural resource base.

The impact of the olive expansion activity is potentially positive on farmers' income, on food security, and on reducing poverty:

The Base constant-price ERR was estimated at 12.2% suggesting favorable outcomes on beneficiaries as a result of the intervention. While the ERR depends on a number of variables associated with fruit production, namely yields of fruit tree, oil content, prices and agricultural practices used by participating farmers, it also depends on the whether intercropping of cereal crops will be practiced during the life of the project and on their yields and prices. Intercropping will remain a critical factor in the economic viability of this project, especially if fruit tree yields are lower and/or production costs are higher than their corresponding basic values. This ERR corresponds to an average intercropping rate of 78%. Without intercropping the project economic viability is questionable.

The ERR was estimated based on the assumption that the contractually required 100% planting success rate is achieved. If this if success rate is reduced by 20% and 30% the corresponding ERR is estimated at 11% and 10% respectively.

Due lack of reliable information regarding the status of the Soil and Water Conservation works, no attempt was made to assess the environmental benefits of these works and their impact on ERR. One important observation is that the ERR would be if the investment cost is reduced by a percentage equivalent to the weight of the in total investment cost.

-At full development and thanks to newly established fruit trees along with intercropping, the food security of the participating households is likely to be enhanced.

-While the available information is not sufficient to confirm that the project interventions have reached the real poor in the project area, one thing is certain is that 80% of the farmers in the selected villages obtained 83% of the areas planted. The average area planted by each beneficiary is about 1.56Ha. The Provinces that have been targeted by the project have high poverty levels.

-During its implementation over 2009-2013, the planting activity generated the equivalent of 5.6 million man-days of employment opportunities. Tree planting activities under the Project are labor intensive and hence expected to generate additional seasonal, but sustained, employment opportunities directly associated with the value chain of fruit trees such as pruning, treatment and harvesting, transportation services and transformation, in addition to casual labor. It is estimated that at full development, an average of 4,700 to 5,000 recurrent seasonal employment opportunities would be created annually.

EVALUATION METHODOLOGY

Other (Performance Evaluation)

UNITS OF ANALYSIS

Date Tree Irrigation Project:

Individuals, agricultural organizations

Extension Project:

Individuals

KIND OF DATA

Other

TOPICS

Topic	Vocabulary	URI
Agriculture and Irrigation	MCC Sector	
Gender	MCC Sector	

KEYWORDS

trees, agriculture, farmer support

Coverage

GEOGRAPHIC COVERAGE

Date Tree Irrigation Project:

Marrakech, Souss Massa Draa, Tanger-Tétouan, and Fez Boulemane

Extension Project:

158 perimeters in 17 provinces covering 5 agro-climatic zones

UNIVERSE

Date Tree Irrigation Project:

Farmers and agricultural organizations in implementation areas

Extension Project:

Subsistence smallholders who practice traditional rain-fed agriculture (mainly cereals)

Producers and Sponsors

PRIMARY INVESTIGATOR(S)

Name	Affiliation
Mathematica	Current
NORC at the University of Chicago	Former (Date Tree)
Mohammed Ameziane Hassani	Former (Expansion)

FUNDING

Name	Abbreviation	Role
Millennium Challenge Corporation	MCC	

Metadata Production

METADATA PRODUCED BY

Name	Abbreviation	Affiliation	Role
Millennium Challenge Corporation	MCC		Review of Metadata

DATE OF METADATA PRODUCTION

2017-12-15

DDI DOCUMENT ID

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MCC Compact and Program

COMPACT OR THRESHOLD

Morocco Compact

PROGRAM

Date Tree Irrigation Project: The Fruit Tree Productivity Project or Projet d'Arboriculture Fruitière (PAF) promotes agricultural speculation that it considers highly productive with low water consumption, through the development of four sectors of fruit trees (olive, almond, fig and date palm) and support to develop their produce. With funding in the amount of \$326.4 million US dollars (after adjustments), its efforts are focused on: (i) mobilizing potential and improving production conditions, (ii) promoting product development, supporting marketing, and strengthening professional organization, (iii) strengthening support activities (training, technical assistance, applied research, and technology transfer. The PAF operates through five activities: (i) expansion and reinforcement of olive groves, almond and fig trees in rainfed zones, (ii) irrigation and reinforcement of olive trees in PMH zones (small and medium) zones, (iii) irrigation and reinforcement of date palms in oasis zones, (iv) support services for targeted tree species, (v) the creation of new units of modern pressing supported by dedicated funds (Catalyst Fund/Fund Catalyst). Extension Project: The overall goal of The Fruit Tree Productivity Project (FTTP) and its components is to accelerate economic growth of the rural economy and alleviate rural poverty particularly for subsistence smallholders who practice traditional rain-fed agriculture (mainly cereals). The specific objective is to increase agricultural income and reduce its variability by replacing cereals (particularly wheat for which Morocco is not competitive

on the international market), with commercial tree crops, where there lies a natural competitive advantage.

MCC SECTOR

Agriculture and Irrigation (Ag & Irr)

PROGRAM LOGIC

Date Tree Irrigation Project: The PAF is designed around efforts to improve the various segments of the value chain (production, post-harvest value-creation, and marketing) of each of the four targeted tree sectors, while ensuring the protection of the environment and the well-being of beneficiaries, including farmers. These efforts are based on: - mobilizing potential and the improving production conditions; - promoting value-creation, supporting marketing efforts, and strengthening professional organization; - strengthening support activities: technical assistance, training, applied research, and technology transfer. This activity is focused on three separate sub-activities: - The hydro-agricultural development of 12 perimeters located in oasis zones covering an area of about 19,000 ha and encompassing nearly 16,500 farms. As in PMH areas, the proposed developments include building irrigation infrastructure intended to improve water transport conditions, and the implementation should utilize a participatory approach with organized beneficiaries. - The reconstruction and densification of palm groves by supplying farmers with in vitro date palm seedlings of noble varieties resistant to Bayoud disease and adapted to production conditions in date-producing areas (the program involves 250,000 in vitro plants); cleaning 170,000 clumps of date palms and providing date-producers with over 240,000 young trees. - Rehabilitation of existing date-producing properties of these same perimeters, which involves providing the affected farmers with training and technical assistance to improve the productivity of their date palms. Extension Project: One of the main activities (Sub-project) of FTTP is concerned with expanding of fruit tree plantations in rainfed hillsides dominated by field crop cultivation. The original strategy of the Sub-project, stipulated replacement of field crops by fruit tree plantations. The Sub-project area is in major part, hilly where the gradient very from 5% to 30%, the target group consists of poor smallholders practicing mainly cereal cultivation. The average size of their land holdings is about 3 hectares fragmented and eroded due to their location - in sloping areas - and to the inappropriate agricultural practices. Yields of cereals are low and highly variable. The Sub-project intervention area, covers 158 perimeters in 17 provinces where, according to the original project document, the total planned plantations were set at: of 100,000 Ha of olive trees, fifteen thousand hectares (15000 Ha) with fig trees, and 5000 Ha with Almond trees.

PROGRAM PARTICIPANTS

Date Tree Irrigation Project: The project is expected to benefit more than 136,000 farms in the targeted areas, spread over more than 217,000 ha. Extension Project: Rural farmers who practice traditional rain-fed agriculture.

Sampling

Study Population

Date Tree Irrigation Project: Farmers and agricultural organizations in implementation areas Extension Project: Subsistence smallholders who practice traditional rain-fed agriculture (mainly cereals)

Sampling Procedure

Date Tree Irrigation Project:

In order to make the farmers' survey more convenient and efficient, NORC will conduct two-stage stratified sampling, with the primary units as areas and secondary units as farmers. The same sample weighting will be associated with each farmer in the sample to make calculations of the parameters and details simpler.

Stratifying at the perimeter level results in a more efficient sampling strategy, controlling the heterogeneity of the indicators that constitute the project's logic model. The goal is to obtain strata within which the activities of the surveyed farmers would be indicative of most of those in the population, and which are significantly different than those of the farmers' activities in other strata. Implicit stratification also provides better geographical coverage of the population.

In each stratum, the planned approach is to proportionally select the same number of farmers from to ensure proportional representation at the stratum level. Sample perimeters will be drawn independently in each stratum, and the sample of farmers is independently drawn in each perimeter. The effectiveness of this sampling technique is all the more important if agricultural areas inside the perimeters are heterogeneous vis-a-vis the indicators to be measured.

Extension Project:

Given the nature of the assignment, no formal sample survey was used. Instead, Farmers' focus group discussions combined with direct observations of the plantation perimeters and informants interviews were organized.

Focus Groups

There types of focus groups, Beneficiary focus groups, these are farmers from the plantations perimeters, which were completed and handed back to the farmers. , Non beneficiary focus groups composed of farmers who have not benefited from any of the project activities and the third focus groups are from farmers who have benefited from other similar project in the past and who have fully mature and well developed plantations.

Taking into account the time that was allocated to field work, fourteen perimeters were selected using purposeful sampling approach were a number of key parameters were taken into account including: the agro-climatic zones of the project area, the plantation status (planted, maintained and handed over to farmers, completed but still under maintenance, not completed), and the hand-over date, geographic distribution and concentration of these plantation, the bidding criteria was that the list selected perimeter were from those that were handed over in 2011 or earlier. This was necessary to ensure that farmers have at least one full season where the operation and maintenance of the parcel was their responsibility.

Focus groups were selected from the same selected perimeters. This choice was purposefully used to reflect, to the extent possible, the post-project completion situation in terms of adjustment of farmers to new environment, appreciation of the project interventions, degree of commitment to perform periodic maintenance of the SWC works and adoption of improved practices intercropping practices. The farmers association. Of each selected perimeter was asked to select between 8 and 10 famers who satisfy the following:

- Farmers should be form the perimeters that were planted and maintained in 2008, and 2009 and handed over on 2011 or earlier
- Farmers' land holdings should be between 3 and 5 Ha.
- Farmers should neither be from the same village nor from the same family

Fourteen focus groups meeting were organized, involving 110 farmers from 14 perimeters. The number of questions discussed was around 6, each of which was allocated 25 minutes discussion time each. Non-beneficiary focus groups were selected from farmers living the same area as the beneficiary farmers. Farmers for the third focus group type were selected from similar projects that were completed in the past and where plantations were fully developed. Farmers

Direct Observation

The purpose of this part is to provide a different perspective to the evaluation exercise, and to supplement and or validate collected /existing data. The visits were carried out to the farmers' parcels to be visited will be selected from among the selected perimeters 4. These parcels fall into four categories:

- Parcels that have been ceded to farmers and in which works (development and maintenance) have been completed in line with the agreed technical specification;
- Parcels in which all the development works have been completed but have not been handed over to farmers as yet;
- Parcels of non-participant farmers that share common characteristics (before project) with project participants;
- Fully developed tree plantation parcels that were developed by other projects.

Informants

Informant's discussions involved series of consultations and interviews of t the project staff, CT (Centers de Travaux) supervisors, contractors, TA representatives, research and specialized institution, ministry of agriculture, specialists in tree plantation and soil and water conservation. The purpose was for:

- Clarification of issues that have been identified during focus groups discussion and from direct observation visits;

Response Rate

Expansion Project:

Participation was very good, a total of 14 focus groups were convened involving 110 farmers from 14 perimeters. The average time spent in each focus group was about 120 minutes, and an average of 10 farmers per group.

Questionnaires

Overview

Date Tree Irrigation Project:

Four questionnaires were used: two farmer surveys (one in irrigated PMH and the other in oasis zones) and two OPA surveys (one for the AUEA survey and one for the Cooperative survey).

Data Collection

Data Collection Dates

Start	End	Cycle
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Data Collection Notes

Extension Project:

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Data Collectors

Name	Abbreviation	Affiliation
C & O Marketing		Date Tree Irrigation Project
Mohammed Ameziane Hassani		Independent Evaluator

Data Processing

Data Editing

Date Tree Irrigation Project:

Data cleaning involves detecting, correcting, deleting, or reporting incorrect data format errors, incomplete data, inconsistent data, etc... This is a very difficult and complex task that requires a significant number of internal consistency checks, it is indeed common to find values given by respondents which do not seem reasonable and therefore need to be identified and corrected. The Mission Director, the data quality specialist and two NORC statisticians on the evaluation team will work with C & O Marketing to develop these controls and to clean and production databases.

Extension Project:

The process was iterative concentrating on triangulation and logical editing technique. 1-farmers were consulted to provide initial inputs with respect to key parameters and variables. Followed, by direct observation , informants interview. and consultation of published data. The Data editing focused on the following aspects in order to:

- a. Fine tune the yields estimates of olives and almonds, labor requirements and input use;
- b. Elaborate cropping patterns, crop and typical farm budgets;
- c. Postulate educated hypotheses regarding the adoption rate, family consumption of olive products (food security) and sales as table olive and or/as olive oil;
- d. Assemble the actual direct and indirect investment costs by year, by perimeter by agro climatic zones and by type of plantations. "With" and "Without" soil and water conservation costs and "With" and "Without" indirect investment costs;
- e. Specify different scenarios for calculations of Financial and Economic IRRs.

Other Processing

Date Tree Irrigation Project:

Data processing will be done at the central office of C & O Marketing Casablanca, and will focus on coding and data entry and cleaning of databases that will be created for analysis in SPSS. The system will include data entry controls to prevent the entry of inconsistent data, both on the definition of valid range for each variable in logic verification and to ensure that the filtering scheme of the questionnaire is being followed. To avoid transcription errors, all data will be entered twice by different entry clerks and inconsistencies in the data entries are identified and resolved.

Extension Project:

Data was collected by the consultant and checked for inconsistencies compared to previous reports, studies, and research and with data collected in wholesale markets and weekly souks or published official statistics. The ERR was calculated using Excel where an integrated set of linked worksheets was designed to minimize data entry and manipulation errors.

Data Appraisal

No content available